

**System Viewers CSCI**  
**Console Navigation System**  
**Thor 3.0 Requirements Review**  
**84K00540 - 120**

**May 21, 1998**

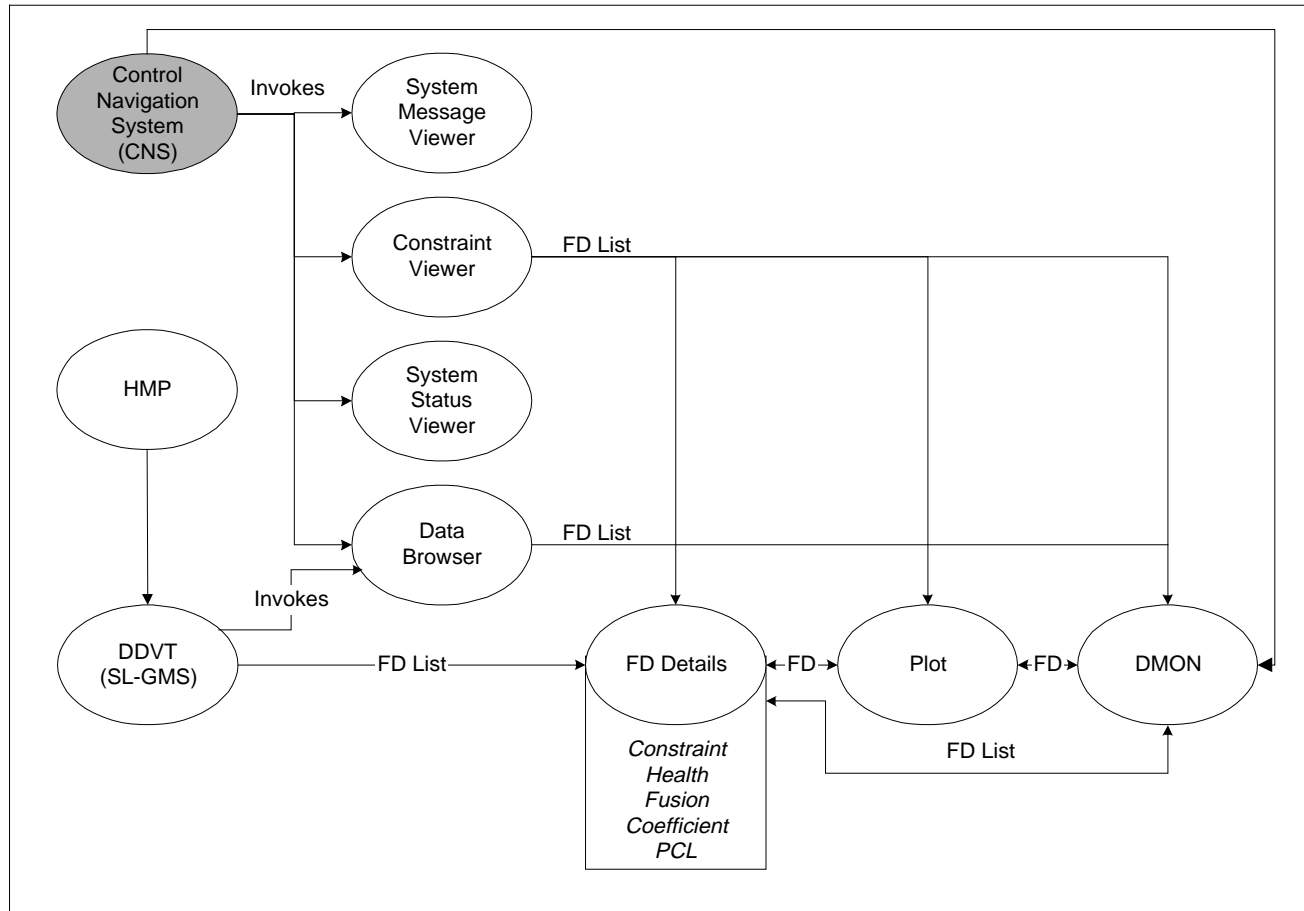
# 1 Console Navigation System

## 1.2 Console Navigation System Introduction

### 1.2.2 Console Navigation System Overview

The Console Navigation System (CNS) provides the Checkout and Launch Control System (CLCS) with a common user interface for the console user to control and monitor their area of responsibility. CNS also provides a method for accessing all system level user interface displays (System Viewers), top level Gateway Status, User Classes, Command Processor (CPRO), Command Scripter, and Virtual Control Panel (VCP) in a real-time operational environment. The CNS will also display any universal data common to all CLCS test sets.

The following diagram shows the relationship of the Console Navigation System to the other System Viewer components.



**Figure 1.1** Console Navigation System in Relation to System Viewers

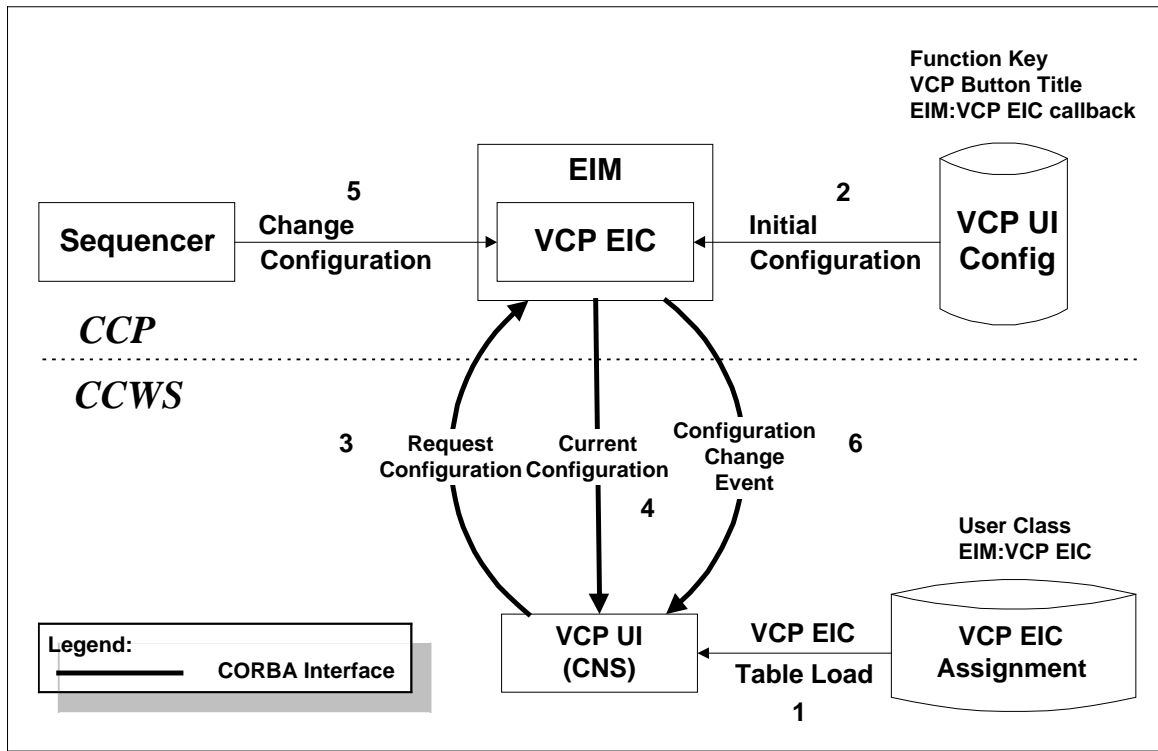
### **1.1.2 Console Navigation System Operational Description**

The CNS is the top level System Viewer window executed on the CCWS and has been designed to occupy as little CCWS monitor real estate as possible. The CNS provides a fixed banner along two edges of the primary monitor and along one edge of the secondary monitor. The CNS provides test set summary information, user interface displays, control access and the Virtual Control Panel user interface. On the primary CCWS monitor, universal data common across all CLCS test sets will be displayed along the top portion of the CNS. This data includes TCID, SCID, JTOY, Control Room, Vehicle and Mission ID, Hardware/Simulation/Playback identifier, etc. The upper left corner of the CNS will display the CCWS assigned User Classes. CCP, DDP, and gateway status information will be accessed through the System Status button. User tools such as calculator, CPU status, and memory status will also be accessible from the CNS. The CNS will allow a user to access the following System Viewers: Constraint Viewer, Data Browser, System Status Viewer, System Message Viewer, FD Details, Plot, DMON, CPRO, and Command Scripter.

The Virtual Control Panel (VCP) will be displayed along the bottom portion of the CNS when selected, and minimized back into the CNS display in order to conserve screen space. The area designated for the VCP display may be used by other displays. However, when the VCP is expanded, it will remain the foremost window. Super Light Weight Tank (SLWT), APU, EPD, ECL, and DPS systems will be accessed from the HCI Manager Program (HMP). The HMP, which is an interface that provides access to dynamic displays including SL-GMS, will be displayed adjacent to the vertical edge of the CNS

The VCP display can be considered a template in which End Item Manager (EIM) applications define the user control functionality. Whenever a user class is assigned to the CCWS, the VCP user interface will access the VCP End Item Component (EIC) assignment configuration file for all VCP displays associated with the user class. For example, the HMF EMIs will provide VCP user control functionality for each of the HMF bays. The configuration file is built and maintained by the RTC Applications group and will eventually become part of the TCID load. The VCP will use the first VCP EIC assignment file entry user class match as the default VCP EIC controller. It then requests the EIM:VCP EIC for the current VCP control configuration. The configuration information is provided to the VCP user interface display as a button title, the associated function key, and the EIM:VCP EIC callback method.

The VCP design concept and event trace are provided below.



**Figure 1.2** Virtual Control Panel Design Concept

### The Event Trace:

1. At VCP initialization, the VCP reads the VCP EIC assignment file into memory.
2. At EIM VCP EIC initialization, the initial configuration of the VCP is read into memory.
3. Whenever a user class is assigned or changed, the VCP will request the current VCP configuration from the corresponding EIM:VCP EIC stored in the memory table. If there is no matching memory table EIM:VCP EIC element, then that user class selection is grayed out on the VCP selection menu.
4. The EIM:VCP EIC returns the current VCP configuration and callback assignment(s).
5. An executing EIM sequencer requests the EIM:VCP EIC to change the VCP configuration to match the current operation.
6. The EIM:VCP EIC sends a configuration change event to the VCP UI. The VCP UI display is then updated to reflect the change.

## 1.2 Console Navigation System Specifications

### 1.2.1 Console Navigation System Ground Rules

1. The Console Navigation System will be loaded and initiated by Operations Configuration Management (Ops CM).
2. ITS will register the CNS as an essential process.
3. The CNS will consist of the primary monitor display only for the Thor delivery.
4. The Virtual Command Panel (VCP) will not issue commands directly. It will communicate with the EIM associated with the control interface for performance of the specified function.
5. For the Thor 3.0 delivery, CNS will initiate the user interfaces without interacting with ITS.
6. CNS will only execute on the CCWS.
7. The CNS will allow unlimited user interface executions.
8. There will be a consistent look and feel to the CNS and the HMP.
9. The Console Navigation System will conform to the to the CLCS HCI Style Guide and Standards documentation number 84K00230.

### 1.2.2 Console Navigation System Selection Functional Requirements

The Functional Requirements area is composed of the following sections:

1. Console Navigation System
2. Virtual Control Panel
3. Issues

#### 1. Console Navigation System:

- 1.1. The Console Navigation System will be loaded during bootup and remain visible on the CCWS at all times.
- 1.2. The Console Navigation System screen will have all windowing functions such as minimize, close, and resize disabled.
- 1.3. The Console Navigation System cannot have any user interface screens or display windows placed on top of it.
- 1.4. The Console Navigation System will send a heartbeat to Subsystem Integrity (SSI) on a cyclic basis upon CCWS initialization load.
- 1.5. *The Console Navigation System will assign a unique process name for each user interface initiated. This process name will be supplied to both Redundancy Management and the initiated process.*
- 1.6. *The Console Navigation System will provide the capability to launch a viewer screen on a secondary CCWS monitor.*
- 1.7. The Console Navigation System will provide access to the following user interfaces:
  - System Message Viewer
  - Constraint/Event Viewer
  - System Status Viewer
  - Data Browser Viewer
  - FD Details Viewer
  - Data Health Viewer
  - PCL Viewer
  - Data Fusion Viewer
  - Plot Viewer
  - DMON Viewer
  - Command Processor (CPRO)

- Command Scripter
  - System Browser
  - Console Allocation Viewer
- 1.8. The Console Navigation System will provide the capability for the System Status button to change a specific color depending on Subsystem status.
  - 1.9. The Console Navigation System will display SCID and TCID information.
  - 1.10. The Console Navigation System will display Test in Progress information.
  - 1.11. The Console Navigation System will display JTOY and CDT timing information.
  - 1.12. The Console Navigation System will provide Vehicle, Mission, and Control Room information.
  - 1.13. The Console Navigation System will display OI and GPC format.
  - 1.14. The Console Navigation System will provide a stopwatch with Start, Stop and Reset capability.
  - 1.15. The Console Navigation System will display user class information.
  - 1.16. The Console Navigation System initial default/boot up configuration is the HMF user class assignment for Thor 3.0 delivery only.
  - 1.17. *The Console Navigation System initial default/boot up configuration is the generic CLCS user class assignment (no user class – monitor only mode).*
  - 1.18. The Console Navigation System will provide a Tools menu that allows access to system tools such as CPU usage, memory usage, calculator, etc.
  - 1.19. The Console Navigation System will provide the capability to print data displayed on an individual selected screen, or an entire screen snapshot.
  - 1.20. The Console Navigation System will provide the capability to indicate whether the CCWS is go or no go (i.e. Subsystem Integrity).
  - 1.21. The Console Navigation System will provide the capability to indicate whether the CCWS is receiving data (i.e. Data Distribution changed data).
  - 1.22. The Console Navigation System will provide access to the Virtual Control Panel.

## 2. Virtual Control Panel:

- 2.1. The RTPS will provide a Virtual Control Panel (VCP) to be used for vehicle/GSE critical functions.
- 2.2. The Virtual Control Panel will be accessible on the CCWS.
- 2.3. The Virtual Control Panel will be accessible from the primary monitor on the CCWS.
- 2.4. *The Virtual Control Panel will be accessible from the secondary monitor on the CCWS.*
- 2.5. *The Virtual Control Panel on both the primary and secondary monitor will match.*
- 2.6. The Virtual Control Panel will be made visible/invisible via a keyboard function key and/or a mouse action.
- 2.7. The Virtual Control Panel will always be on top whenever it is made visible. Other user interfaces, windows, etc., will not obscure the VCP interface.
- 2.8. *A distinct Virtual Control Panel will be made available for each user class assigned to the CCWS.*
- 2.9. The Virtual Control Panel will have a maximum of eight control interfaces.
- 2.10. Only one Virtual Control Panel will be visible at any one given instance.
- 2.11. A function key and/or mouse action shall be provided to quickly access the VCP for each available user class.
- 2.12. Either an assigned function key or a mouse action can invoke a control interface.
- 2.13. Each control interface will display the associated function key name (e.g. F1).
- 2.14. Each control interface will display a text title of 24 characters maximum.
- 2.15. A Virtual Control Panel will be created for the User Class at CCWS initialization and whenever a User Class assignment is made to the CCWS.
- 2.16. The interface controls for the VCP will be assigned based on a configuration file.
- 2.17. The Virtual Control Panel will supply an interface to the RTC Application Software to perform the following functions:
  - Modify the title associated with the control interface
  - Modify the EIM/EIC/Method associated with a control interface

- Inhibit a control interface
  - Activate a control interface
  - Cause the VCP to become visible and on top
- 2.18. The Virtual Control Panel shall support multiple panels for each User Class (e.g. for a User Class of HMF, there will be two VCPs; one for FRCS and one for APS).

### **3. Issues**

- 3.1. The use of color coding the icon/task bar to reflect the current status of the user interface process:
- Not executed
  - Running
  - New data available
  - Error/exception state
- 3.2. The use of “hot keys” to initiate and/or “pop to the forefront” user interfaces.

### **1.2.3 Console Navigation System Selection Performance Requirements**

*User Interfaces must be displayed in 1 second.*

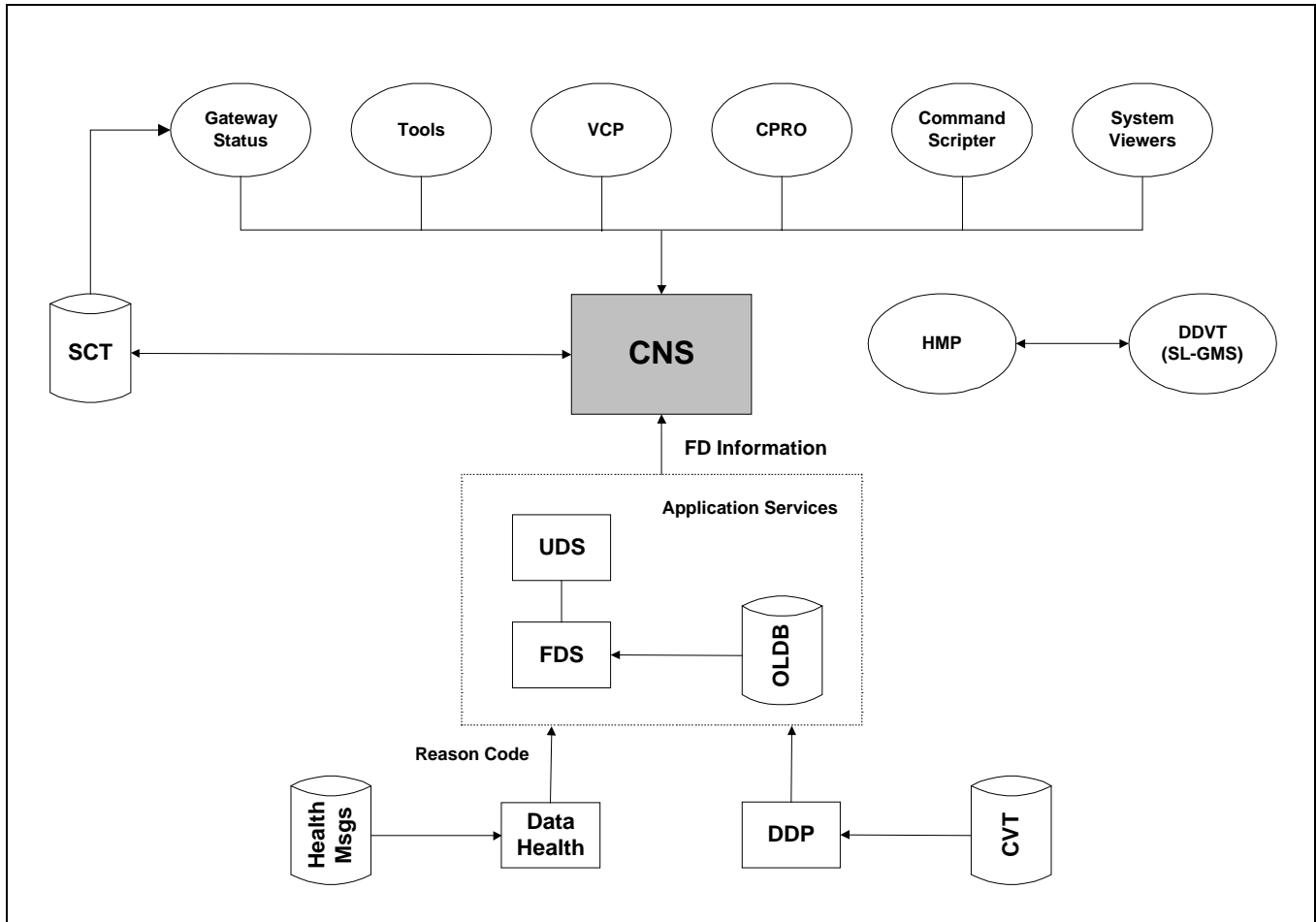
### **1.2.4 Console Navigation System Interfaces**

The Console Navigation System interfaces with and accesses its data from:

- Application Services Subsystem Services CSC
- Clock & Counter Services CSC
- Timer Services
- Authentication Server
- SCT

### 1.2.5 Console Navigation System Selection Data Flow Diagram

The Console Navigation System is present whenever a CCWS is booted. The Console Navigation System can invoke the Constraint Viewer, Data Browser, System Status Viewer, System Message Viewer, FD Details, Plot, DMON, CPRO, Command Scripiter, Tools, or Gateway status.



**Figure 1.3** Console Navigation System Data Flow